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BOTANICAL NOTES, 1889.

BY J. H. CARRUTH, LAWRENCE.

A NEW GRAPE.

In July, 1883, the *Botanical Gazette*, published in Indiana, by Prof. J. M. Coulter, contained a description by Dr. Engelman of the Vitis palmata, Vahl. It is in no book which I have; not even in Oyster or Loudon. I copied the article in full. The chief points are that the young branches are red, angular, and ribbed; leaves palmate, with three or five lobes, the lobes widest in the middle, and narrow below; berries black without bloom, four or five lines in diameter; flowers in June, fruit ripe in October. Most like Vitis riparia. In the spring of 1887, I several times noticed in Lawrence, grapevines with palmate leaves, and red, angular branches. Vitis palmata, I thought. In the spring of 1888, to see what the fruit would be, I took up two and set them in my garden. I got two, because our North American species are often imperfect, having only stamens. They grew, and three more came up of their own accord. Some of them grew more than twenty feet; but to my surprise, only the lower leaves were palmate, the upper ones being like those of V. cordifolia, or V. riparia.

In 1889 I thought I should have fruit; but when my vines blossomed, they had only staminate blossoms. I found one in the park which had perfect blossoms. The fruit in September was like that of the V. riparia.

Is it a new species, or only a variety of V. riparia? The mulberry, Morus rubra, has leaves both palmate and entire, and so some other trees. In the description of V. palmata, it was said to have seeds different from other species. This point I did not examine.

VITIS ÆSTIVALIS.

Wood, in describing this species, says leaves "with scattered ferruginous hairs beneath." Eaton says leaves "in their young state rust, downy beneath." Gray says, "young leaves downy, with large cobwebby hairs beneath; smoothish when old." I have seen them in New York State and in Kansas in September perfectly smooth.

The fruit is commonly about one-fourth of an inch in diameter. In 1879 I saw in Cherokee county a vine with fruit as large as that of the Concord.

ACER NIGRUM.

Wood, Eaton and Loudon call it a species; Gray makes it a variety of A. saccharinum. In Watertown, N. Y., the two kinds are used about equally for shade trees. There are no intermediates, which there would be if they were only varieties. The differences not mentioned in the books are that the leaves of A. nigrum are translucent, as one may see by looking through them towards the sun. A. saccharinum is not so.

The leaves of both have five lobes, the three upper ones large and having from the middle of each a projection half an inch long. The three lobes have each two angles. A. saccharinum has projections like those above mentioned from each of the angles, making nine in all. A. nigrum has no such projections from the angles —only three in all.

A. saccharinum is found in Miami and Linn counties. A. nigrum is abundant at Excelsior Springs, Mo.

POLYGANUM ERECTUM.

Wood and Gray both make it a variety of P. aviculare. Eaton and Loudon make it a species. If it was only a variety, the variations would not be constant; but they are. P. aviculare is never erect, but P. erectum is so always. The leaves of P. aviculare are always brown; those of P. erectum bright green. I once saw the P. erectum growing right up through a patch of P. aviculare. They are as easily distinguished as any other two species.

PHYSALIS LANCEOLATA, PENNSYLVANICA, AND HÏRTA.

Gray makes all three of these varieties of the same. Wood makes the first two varieties, and does not mention the third. I have seen many specimens of all three. I have not noted a difference in the leaves or the flowers of the first two, but P. lanceolata is pubescent or puberulent; branches near the ground, is soon prostrate or leaning, only a foot high, blossoms in June, and its fruit calyx is cylindrical, more than an inch long, and has at the base a hemispherical depression.

P. Pennsylvanica is glabrous, has a clean stem half its height, always erect, height, twenty to twenty-four inches, blossoms in August, and its fruit calyx is broad-oval, three-fourths of an inch long, and has a convex base.

P. hïrta is very unlike to either of these. Stem and leaves pubescent, leaves entire, somewhat rhomboidal, twice as large as those of the other two, and the blossoms are all yellow. Mr. Gray was in a hurry when he said this was a variety of P. Pennsylvanica.

QUERCUS TINCTURIA AND COCCINCA.

The older editions of both Gray and Wood make them distinct species; the later make them only varieties. I cannot think of a reason for doing so. The leaves of Q. tincturia are always obovate, those of Q. coccinca never. The full descriptions are as distinct as those of any other two species.

THE INSULATION RESISTANCE OF SOME ELECTRIC-LIGHT WIRES.

BY PROF. LUCIEN BLAKE AND H. RADCLIFFE, LAWRENCE.

The insulation resistance of electric-light wires is commercially of great importance. Leakage through defective or insufficient insulation represents not only expensive waste, but great danger to the generating machines by grounding them, and thus exposing their armatures to burning out. The element of risk to life and property also depends somewhat upon the character of the insulating sheath of the wires.

Ten years ago the so-called underwriters' wire was extensively and almost exclusively used for outside work, because recommended by the board of underwriters in New York. To-day, however, no thoroughly-posted electrician will use it, for it cannot resist moisture, and many fires in buildings and many burnings-out of armatures traceable to it have justly led to its condemnation.

At the present time there are some eight or ten well-known wires upon the market. The reputation of these wires has been established largely by the firms handling them, and not often have any scientific tests upon them been made.

The insulation sheath of an arc-light wire may be considered to have two functions, one electrical and the other mechanical, though the former is largely dependent upon the latter. Electrically, it must keep the electric current in the wire without leakage; mechanically, it must resist abrasion, heat, and moisture. The experience of any good and observant electric-light company will determine a wire's claims to the mechanical part, though wires have not been under trial a sufficiently long time yet to thoroughly prove them; a long-time exposure may develop faults not yet suspected; in fact, what changes may occur in the mechanical qualities of wires bearing for many years high-tension currents, we do not know. Particularly as re-